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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/064,998 | 09/06/2002 | Arun Kumar Jaura | 201-1225 | 1850 |

22844 7590 02/12/2004

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EXAMINER

CAMPBELL, KELLY E

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

3618

DATE MAILED: 02/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/064,998 | Applicant(s) JAURA ET AL. | |
| | Examiner Kelly E Campbell | Art Unit 3618 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on ____.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-16 is/are pending in the application.

4a) Of the above claim(s) ____ is/are withdrawn from consideration.

5) ☐ Claim(s) ____ is/are allowed.

6) ☒ Claim(s) 1-3, 5-9 and 11-16 is/are rejected.

7) ☒ Claim(s) 4 and 10 is/are objected to.

8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 09/06/02 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

| | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6) <input type="checkbox"/> Other: |
|---|---|

DETAILED ACTION

Drawings

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,6-9,11 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morimoto et al (US 6,469,402) in view of Sonntag et al (US 6,213,233).

Morimoto et al teaches a cooling system for a hybrid vehicle powertrain in series configuration (see Abstract), having a motor and a transmission including:

the motor (8) having a stator housing, see column 2, lines 63, adjacent the transmission housing, see Figure 4;

a cooling loop in heat conductive contact with the motor stator housing (indicated at 8) and with the transmission (6), see Figure 4;

the cooling loop (silent) includes a heat exchanger (16) and conduits providing a fluid flow connection between the motor stator housing (indicated at 8), the transmission (6), and the heat exchanger (16), the cooling loop further including a motor driven pump (20);

including a vehicle system controller (26) for receiving and processing input from at least one vehicle sensor (54 or 56), and for commanding the system when the processed input of at least one vehicle sensor (54 or 56)

Sonntag et al teaches a cooling loop for a hybrid vehicle, see Figure 1,

wherein the cooling loop includes a heat exchanger (68) and further including a mechanical pump (20) and an auxiliary pump (78) for delivering coolant through the heat exchanger (68) for controlling the flow of coolant.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the cooling system of the invention taught by Morimoto with an additional pump as taught by Sonntag et al in order to provide increased control of the flow of coolant throughout the cooling circuit.

With regards to claims 7-8, Sonntag et al discloses the arrangement or displacement of the mechanical pump (20) and the auxiliary pump (78) to be of no importance or significance, see Column 2, lines 27-29 and Column 3, lines 50-53, and it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70.

With regards to claim 9, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the range of maximum temperature for

the transmission and motor to be no greater than 250 degrees Fahrenheit and 630 degrees Fahrenheit, respectively, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Claim 2-3, 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morimoto et al (US 6,469,402) in view of Sonntag et al (US 6,213,233) as applied to claim 1 above, and further in view of Hasebe et al (US 6,467,286).

Morimoto et al modified by Sonntag et al does not teach a controller for commanding operation of a pump at a pre-selected input threshold received from a sensor.

Hasebe et al teaches a cooling loop for a hybrid vehicle wherein a circulating pump (13) is driven by signals or processed input, received from a vehicle temperature sensor (22) wherein the processed input of at least one vehicle sensor (2) exceeds a pre-selected threshold or predetermined temperature.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the cooling system with vehicle sensors taught by Morimoto such that the pump is operated when the processed input of the sensor exceeds a threshold in order to provide specific standards and circumstances for executing the cooling system.

With regards to claims 15-16, it has been held that to be entitled to weight in method claims, the recited structure limitation therein must affect the method in a

manipulative sense, and not to amount to the mere claiming of a use of a particular structure. *Ex parte Pfeiffer*, 1962 C.D. 408 (1961).

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morimoto et al (US 6,469,402) in view of Sonntag et al (US 6,213,233) as applied to claim 1 above, and further in view of Prabhu et al (US 6,670,788).

Morimoto et al modified by Sonntag et al teaches all aspects of the claimed invention as discussed above for claim 1, except a hybrid vehicle cooling system having an integrated starter-generator.

Prabhu et al teaches a hybrid vehicle including a ISG or Integrated Starter-Generator (11), see Column 1, lines 17-25.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the hybrid vehicle invention taught by Morimoto et al in view of Sonntag et al , since the ISG is a known replacement for the motor/generator and performs additional functions such as automatic start-stop and regenerative braking for enhancing vehicle versatility and functionality.

Allowable Subject Matter

Claims 4 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not disclose a cooling system for a hybrid vehicle powertrain including a cooling loop having a conduits providing a fluid flow connection between the motor stator housing, transmission and heat exchanger, with a mechanical and auxiliary pump and further including a controller for commanding the auxiliary pump to operate when the input of at least one vehicle sensor exceeds a pre-selected threshold and the cooling loop includes bypass conduits and valves independently controllable by the controller when the at least one vehicle sensor exceeds the threshold and the auxiliary pump is reversible.

With regards to claim 9, the prior art does not disclose a cooling system for a vehicle including the above limitations and further including a stator housing overlapped by a transmission housing.

Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Barrie et al (5,217,085) teaches a cooling circuit for an electric motor. Brandenburg et al (5,291,960) teaches a cooling system for a hybrid electric vehicle. Hara et al (6,323,613) teaches a coolant circuit for an electric motor. Adelman et al (6,326,709) teaches a cooling system for a generator. Suzuki et al (6,532,911) teaches a cooling system for a hybrid vehicle. Fukasaku et al (6,661,109) teaches an electric generating system for an automobile.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kelly E Campbell whose telephone number is (703) 605-4264. The examiner can normally be reached on 9:00-5:30 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Johnson can be reached on (703) 308-0885. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9326.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.


KEC


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SUPERVISORY PATENT EXAMINER
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2/9/04